REMARKS

Claims 1, 3-7, 9-13, 15-19, and 21-24 would remain pending upon entry of this amendment. Independent claims 1, 7, 13, and 19 are proposed to be amended to incorporate the subject matter of canceled claims 2, 8, 14, and 20 respectively.

In the Final Office Action, the Examiner rejected claims 1-3, 5-9, 11-15, 17-21, 23, and 24 under 35 U.S.C. § 103(a) as being unpatentable over Raman et al. (U.S. Patent No. 5,400,394) in view of Ding (U.S. Patent No. 6,788,785); and stated that claims 4, 10, 16, and 22 would be allowable if rewritten in independent form.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

Applicant respectfully traverses the § 103(a) rejection of claims 1, 3, 5-7, 9, 11-13. 15, 17-19, 21, 23, and 24 over Raman et al. in view of Ding. Independent claims 1, 7, 13, and 19, as amended, require a system, method and device including, *inter alia,* "wherein the Auxiliary Vector filtering . . . multiplies the [transmitted] signals by the array of filter coefficients and subtracts the result from the [transmitted] signal commands." The combination of Raman et al. and Ding, even if it were proper, fails to teach or suggest all elements of the claimed circuit, method and apparatus.

With regard to canceled claims 2, 8, 14, and 20, page 3 of the Office Action alleges that Ding teaches the claimed multiplying and subtracting at col. 20, lines 1-19. This portion of Ding provides only the following:

> The P(n) calculator 308, now being a matrix calculator, operates in accordance with the flow-chart 400 shown in FIG. 6. Upon start up for the sampling interval n (block 401), the routine 402 sets an initial value to index j (block 404) which is submitted together with the auto-correlation matrix R(n) (block 406) to a projection coefficient column calculator (block 408). The calculator provides a steepest descent iteration in accordance with Equation (50) for the current value of index j, thus updating the corresponding column of projection coefficients from the previous sampling interval (block 408). The updated column of the

projected coefficients is sent to a storage means (routine 410, block 412) to be stored until the other columns of P(n) are calculated. Until the index j is equal to N-1 (block 416), its value is incremented by 1, i.e. made equal to j+1 (block 418), and the steepest descent iteration is repeated (block 408) to determine the next column of P(n). By performing N corresponding steepest descent iterations for j=0, 1, ... N-1, all columns of the inverse auto-correlation matrix are thus

This portion of Ding describes only P(n) calculator 308 in Fig. 5 and its associated operation (acts 401-418) in Fig. 6. These components in Ding fail to teach what is claimed.

For example, the claimed transmitted signals by which filter coefficients are multiplied may only reasonably correspond to signal x(n) above filter 302 in Fig. 5. The signal R(n) that is input to P(n) calculator 308 is not reasonably related to the claimed transmitted signals (e.g., x(n)), so col. 20, lines 1-19, of Ding does not teach at least the claimed "multiplies the [transmitted] signals."

Similarly, the claimed signal that is subtracted from the signal commands may only reasonably correspond to signal y(n) above adder 318 in Fig. 5 of Ding, because only y(n) is subtracted from signal d(n). P(n) calculator 308 that is described in col. 20, lines 1-19, of Ding does not reasonably relate to signal y(n) in Fig. 5, so the cited portion of Ding quoted above simply does not teach "subtracts the result from the [transmitted] signal commands" as required by claims 1, 7, 13, and 19 as amended.

Even though it is not part of the stated rejection, Applicant also notes that filter 302 in Fig. 5 also fails to teach the claimed subject matter. The "result" of its filtering is plainly $W^T(n)X(n)$, but it is y(n) that is subtracted from d(n) in Fig. 5, and not $W^T(n)X(n)$. Hence, this non-cited portion of Ding also fails to teach "wherein the Auxiliary Vector filtering ... multiplies the [transmitted] signals by the array of filter coefficients and subtracts the result from the [transmitted] signal commands" as set forth in the claims.

Because the combination of Raman et al. and Ding fails to teach or suggest all elements of independent claims 1, 7, 13, and 19, a *prima facie* case of obviousness has not been established for these claims. Dependent claims 3, 5, 6, 9, 12, 15, 17, 18, 21, 23, and 24 are allowable at least by virtue of their dependence from claims 1, 7, 13, and 19.

A *prima facie* case of obviousness also has not been established for claims 1, 3, 5-7, 9, 11-13. 15, 17-19, 21, 23, and 24, at least because no suggestion or motivation has been provided to combine Raman et al. and Ding. The proposed justification on page 2 of the Office Action, "to update and calculate the algorithm progresses in echo canceller system," is conclusory and devoid of citation to either reference. Such a bare conclusion does not establish a *prima facie* case of obviousness without evidence supporting that conclusion.

Also, no reasoning, in the references or otherwise, has been provided detailing what deficiency or need in the cancel module 208 of Raman et al. would have motivated one of ordinary skill in the art to add the teachings of Ding. Absent any showing of a deficiency or a need in Raman et al., the impetus to combine the references must stem solely from Applicant's specification, which is improper. Because no evidence of any motivation to combine the teachings of Raman et al. and Ding has been provided, a *prima facie* case of obviousness has not been established for claims 1, 3, 5-7, 9, 11-13. 15, 17-19, 21, 23, and 24.

Reconsideration and allowance of claims 1, 3-7, 9-13, 15-19, and 21-24 is respectfully requested.

In any event, this amendment should be entered, because it reduces the issues for appeal by the incorporation of subject matter from the canceled claims into the independent claims.

In the event that any outstanding matters remain in this application, Applicant requests that the Examiner contact Alan Pedersen-Giles, attorney for Applicant, at the number below to discuss such matters.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0221 and please credit any excess

fees to such deposit account.

Respectfully submitted,

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